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Docket No.: M4065.0732/P732  
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:  
Howard E. Rhodes

Examiner: Mai-Huong C. Tran

Application No.: 10/694,990

Art Unit: 2818

Filed: October 29, 2003

For: ISOLATION REGION IMPLANT  
PERMITTING IMPROVED PHOTODIODE  
STRUCTURE

**RESPONSE TO RESTRICTION AND ELECTION OF SPECIES REQUIREMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

This paper is in response to the restriction and election of species requirement set forth in the Office Action mailed January 28, 2005. Applicant hereby elects Group I, claims 1-61 and 134-136 for continued examination without traverse.

Applicant further elects Species I for continued examination with traverse. At least claims 1-21 read upon Species I, which is illustrated in FIGS. 5A-5B. Applicant respectfully submits that claim 1 is also a linking claim to Species II (claims 22-40) and portions of Species IV (claims 134-135), for the reasons provided below. See M.P.E.P. § 809.3.

Claim 1 recites an image device with a photosensor comprising, *inter alia*, "at least one isolation trench provided in a substrate having a first conductivity type, said substrate having a first dopant concentration; and a doped region having said first

conductivity type surrounding at least a portion of said trench in said substrate, said doped region having a second dopant concentration.”

Claim 22 recites an image structure comprising, *inter alia*, “a trench isolation region surrounded at least in part by a first doped region with a first conductivity type having a first impurity implant dose, wherein said first doped region is surrounded by a second doped region of said first conductivity type having a second impurity dose implant concentration; and a charge collection region with a second conductivity type formed to be approximately less than 0.30 $\mu$  away from said trench isolation region.”

Claim 134 recites a processing system with a photosensor comprising, *inter alia*, “at least one isolation trench provided in a substrate having a first conductivity type, said substrate having a first dopant concentration; and a doped region having said first conductivity type surrounding at least a portion of said trench in said substrate, said doped region having a second dopant concentration.”

Claim 135 recites a processing system with an imager structure comprising, *inter alia*, “a trench isolation region surrounded at least in part by a first doped region with a first conductivity type having a first impurity implant dose, wherein said first doped region is surrounded by a second doped region of said first conductivity type having a second impurity dose implant concentration; and a charge collection region with a second conductivity type formed to be approximately less than 0.30 $\mu$  away from said trench isolation region.”

M.P.E.P. § 809.03 provides that “[t]he most common types of linking claims which, if allowed, act to prevent restriction between inventions that can otherwise be shown to be divisible, are (A) genus claims linking species claims.” In this case, claim 1 is a genus claim linking species claims 2-40 and 134-135, evidenced by FIGS. 5A-5B of

Applicant's specification. The photosensor of Species I (claims 1-21) can be used in the image structure of Species II (claims 22-40). Similarly, the photosensor of Species I can also be used in portions of Species IV (claims 134 and 135).

For example, the structure recited in claim 1 is illustrated in FIGS. 5A-5B. The structure recited in claim 22 is also illustrated in FIGS. 5A-5B. It is clear that Species I can be used with Species II. For the same reasons, the structure of claim 1 can be used in claims 134 and 135. Accordingly, the subject matter of claim 1 is found in claim 22 and claims 134 and 135.

Form Paragraph 8.12 provides: "Upon the allowance of the linking claim(s), the restriction requirement as to the linked inventions **shall** be withdrawn and any claim(s) depending from or otherwise including all the limitations of the allowable linking claim(s) will be entitled to examination in the instant application." In this case, claim 1 would be the linking claim for Species II and portions of Species IV.

Moreover, given the circumstances of this case, it would not be a serious burden for the Examiner to examine all of the claims of Group I at this time. Applicant respectfully submits that Species I, II, III, and IV, are all classified in class 257, and subclass 292, as indicated in the Office Action dated January 28, 2005. Accordingly, it would not be a serious burden to continue examination of all the pending claims since the search and examination of Species I, claims 1-21, would also encompass prior art covering Species II, III, and IV. See M.P.E.P. § 803.

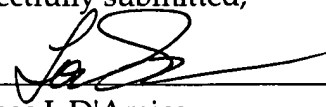
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An action on the merits of all the claims and a Notice of Allowance thereof are respectfully requested.

Dated: February 28, 2005

Respectfully submitted,

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